$$\int (x^2+5x-2)\,dx$$

$$\boxed{\frac{x^3}{3}+\frac{5}{2}x^2-2x+\underline{\underline{1}}}$$

$$\boxed{\frac{x^3}{3}+\frac{5}{2}x^2-2x-\underline{\underline{101}}}$$

$$\boxed{\frac{x^3}{3}+\frac{5}{2}x^2-2x+\underline{\underline{\frac{44}{5}}}}$$

$$\frac{x^3}{3}+\frac{5}{2}x^2-2x+\underline{\underline{C}}$$

$$\int \sin x \, dx = -\cos x + C$$

$$y = \sin x$$

$$\frac{dy}{dx} = \cos x$$

$$y = \cos x$$

$$\frac{dy}{dx} = -\sin x$$

$$f(x) = x^2 - 2$$
$$f(x) = x^2 + 5$$
$$f(x) = x^2 - 9$$

family of curve

same derivative

$$\int \frac{1}{x}\,dx = \int x^{-1}\,dx$$

$$= \underline{\ln x} + C$$

constant

antiderivative

$$y = \underline{\ln x}$$

$$\frac{dy}{dx} = \frac{1}{x}$$

$$\int e^x\,dx = e^x + C$$

$$\int \left(3x - \frac{5}{x^2} + \frac{2}{x^3}\right) dx = \int \left(3x - 5x^{-2} + 2x^{-3}\right) dx$$

$$= \frac{3x^2}{2} - \frac{5x^{-1}}{-1} + \frac{2x^{-2}}{-2} + C$$

$$= \frac{3}{2}x^2 + \frac{5}{x} - \frac{1}{x^2} + C$$

$$\int \left(\frac{\sqrt{x}+1}{\sqrt{x}}\right) dx = \int \left(\frac{\sqrt{x}}{\sqrt{x}} + \frac{1}{\sqrt{x}}\right) dx$$

$$= \int \left(1 + x^{-\frac{1}{2}}\right) dx$$

$$= x + \frac{x^{\frac{1}{2}}}{\frac{1}{2}} + C$$

$$= x + 2\sqrt{x} + C$$

$$\int \tan x \cos x \, dx = \int \frac{\sin x}{\cancel{\cos x}} \cdot \cancel{\cos x} \, dx$$

$$= -\cos x + C$$

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9.

$$\int \left(e^{t/2} - 5t^{-2}\right) dt =$$

$$2e^{t/2} + \frac{5}{t} + C$$

$$\cancel{2}e^{t/2} \cdot \frac{1}{\cancel{2}} + -5t^{-2}$$

$y = e^x$

$\frac{dy}{dx} = e^x$

$y = e^y$

$\frac{dy}{dx} = e^y \cdot \frac{dy}{dx}$

$$\int \frac{4}{3} t^{1/3}\, dt = \cancel{\frac{4}{3}} \cdot \frac{t^{4/3}}{\cancel{4/3}} + C$$

$$= t^{4/3} + C$$

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